

The Storm Water Pollution Prevention Bulletin is prepared by the Storm Water Compliance Review Task Force to aid all projects and operations in maintaining compliance with the National Pollutant Discharge Elimination System (NPDES) permit requirements.

The list of available Best Management Practices (BMPs) at construction sites continues to increase. While hydraulic mulches, silt fences and sandbags continue to be the norm for soil stabilization and sediment control, this bulletin concentrates on a newer technology - fiber rolls. Typically, fiber rolls are identified under manufacturer trade names as straw wattles or straw rolls.

FIBER ROLLS (CD43)

Fiber rolls are installed per CD43 in the *Caltrans Storm Water Quality Handbooks - Construction Contractors Guide and Specifications*. While some contractors are using straw wattles with a great deal of success and regularity, others seem unaware of these products.



SOIL STABILIZER OR SEDIMENT CONTROLLER?

Fiber rolls are unique BMPs because they can be used for both soil stabilization and sediment control. Use as a soil stabilizer is based on the BMP's ability to affect a key factor that contributes to increased erosion - slope length. By shortening the effective slope length and slowing the

velocity of runoff, initial erosion is reduced. Fiber rolls used for upstream soil stabilization and sediment control work best to reduce maintenance of required minimum BMPs such as: straw bales, silt fence and sandbags.

FIBER ROLLS OFFER THE FOLLOWING BENEFITS:

- Used with tacked straw they are an efficient and cost effective soil stabilization measure for slopes.
- Will last 3 to 5 years and can be left in place.
- Can reduce maintenance of silt fences, straw bales, earth berms and sandbags.
- Will increase effectiveness of soil stabilizers and reduce maintenance.
- Can be used for storm drain inlet protection, similar to sandbags, but will last longer.
- Are less expensive than brush barriers and easier to install.

- Will not leak sediment at joints or use excessive amounts of raw material, and can be worked with after saturation.

FIBER ROLLS WORK BY:

- Spreading overland water flow to prevent rill and gully development.
- Reducing slope length to reduce sheet erosion.
- Trapping sediment to prevent overall slope erosion.
- Reducing erosive flow velocities.



Typical fiber roll installation

INSTALLATION TIPS FOR FIBER ROLLS:

Position the rolls on the contour (a level line) and space them every 2.4 to 3.0 meters (7 to 9 feet) along the slope face.

Entrench rolls 100 mm (4 inches). Failure to entrench rolls will allow flow underneath, negating its benefits.

Be sure to stake the ends - fiber rolls will not leak like straw bales if the ends are staked.

Fiber rolls will last as advertised if properly staked. Use 19 mm x 19 mm x 600 mm (3/4 inch x 3/4 inch x 24 inch) stakes, spaced a maximum of 1.2 meters (3.5 feet) apart.

Fiber Rolls
CD43



Additional information is available in the *Caltrans Storm Water Quality Handbooks*. Questions or comments may be directed to:

Ken Keaton • Caltrans HQ Environmental Engineering • (916) 653-4947

or

Melinda McCoy
Consultant Team • (714) 567-2588